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CHOP HAY FOR STEERS?

Results Have Not Agreed in Feeding Trials Past 2 Years at Iowa Station

By C. C. CULBERTSON

ONE OF THE newer methods of making hay, chopping it in the field or as it comes from the field and putting it in the barn or stacking it, has gained considerable popularity with some Iowa farmers who feed cattle.

So last year (1941-42) in our feeding tests at the Iowa Station with yearling steers we fed one lot chopped alfalfa hay mixed with the shelled corn. This lot gained best of all those fed and showed the highest margin per steer at the end of the feeding trial.

We wanted a further check on the practice so in the 1942-43 feeding tests, which were completed in June, we compared again a lot fed chopped alfalfa hay, mixed with shelled corn, with another lot which got regular alfalfa hay and shelled corn.

Results Reversed

The results in the 2 years do not agree. This year the lot fed whole alfalfa hay made more economical gains and returned a larger margin per steer over feed cost than the lot fed chopped hay.

The difference may be due to the fact that the hay used in the past year was not chopped so fine; there were more of the longer pieces — 6 inches or more long. So the coming year we plan to chop hay fine for one lot and in longer pieces for another and find out whether or not this may account for the difference in the results of the last two feeding tests.

The steers fed chopped hay last year returned \$2.70 per head more margin over feed cost than those fed long hay; this year, the steers fed the long hay were ahead in margin by about \$2.85 per head over feed cost. In other words, the results were reversed this year from those of a year ago. We want to find out why.

In the tests this year there were six lots of eight yearling steers each.* These were fed for 200 days. Two of

the lots were limited in corn to try to find out whether it might be more profitable now to substitute some roughage for a part of the grain. One of the limited grain lots received three-fourths of a full-feed of corn and the other received a half full-feed of corn for the first 120 days and then a full-feed for the rest of the 200 days.

Neither of these limited-grain lots returned as high a margin as the full-fed steers of the other four lots.

The two limited grain lots also received chopped alfalfa hay mixed with their corn. One lot was fed ground ear corn instead of shelled corn and the sixth lot received a sweetened protein supplement instead of linseed meal.

The lot receiving the sweetened protein sold for 10 cents a hundred higher than the comparative lot on linseed meal, but the margin over feed cost was about \$1 per steer lower than the steers on linseed meal.

How They Were Fed

The various lots this year were fed as follows: Lot I, regular alfalfa hay, shelled corn full-fed twice daily, 1 pound of linseed meal per head daily, mineral mixture fed at the rate of 0.75

ounce per steer daily, fed over the shelled corn. Salt was fed free-choice.

Lot II was fed the same except that the hay was chopped, mixed and fed with the corn. Lot III was fed the same as Lot II except that the steers instead of being full-fed shelled corn received three-fourths of a full-feed throughout the 200 days. Lot IV received half a full-feed of corn the first 120 days and was then full-fed the remainder of the feeding period. Lot V was fed the same as Lot I except that corn and cob meal was fed in place of shelled corn. Lot VI was fed the same as Lot I except that a sweetened protein supplement replaced the linseed meal.

The sweetened supplement consisted of 50 pounds linseed meal, 25 pounds soybean oilmeal, 10 pounds cottonseed meal and 15 pounds cane molasses. A similar supplement was fed to a group last year, and the results the 2 years are similar — the sweetened protein did not appear to have any advantage over straight linseed meal.

The mineral mixture fed was made up of 60 pounds ground raw limestone; 37.96 pounds special steamed bone meal; 2 pounds iron oxide (ferrie); 0.04 pound potassium iodide.

The accompanying table shows that the cost of gains was highest in Lot II, which got a full-feed of shelled corn mixed with the chopped hay. This lot

DAILY GAIN, FEED COST, SELLING PRICE, MARGIN, DRESSING PERCENTAGE, SHRINKAGE AND GRADE OF STEERS — 1942-43 FEEDING EXPERIMENT

Lot No.	I Alfalfa hay — regular	II Alfalfa hay — chopped	III Corn limited entire period	IV Corn limited 120 days	V Corn and cob meal	VI Sweet- ened protein
Av. daily gain	2.19	2.20	1.99	1.78	2.20	2.19
Feed cost 100 lbs. gain—crediting feed saved by hogs	\$12.40	\$13.22	\$12.19	\$12.61	\$12.14	\$12.39
Selling price, Chicago	\$16.50	\$16.75	\$16.35	\$16.15	\$16.35	\$16.60
Margin per steer over feed cost—crediting feed saved by hogs	\$32.49	\$29.64	\$27.06	\$24.60	\$30.84	\$31.35
Dressing percentage	63.7	64.0	62.6	61.6	62.3	64.7
Shrinkage (percent)	2.94	4.00	4.71	3.64	3.43	3.77
Grade of steers in Chicago	6 choice 1 good	6 choice 1 good	5 choice 3 good	1 choice 7 good	5 choice 3 good	7 choice 1 good

*Lots I and II finished with only seven steers each, because one steer in each lot was removed early in the feeding period.

also sold slightly highest. In the margin over feed cost the steers of this lot ranked fourth among the six lots. The steers of this lot were able to sort the corn out of the hay to a large extent and leave the long pieces of hay. It cost more in corn to feed this lot than Lot I.

The steers returning the highest mar-

gin over feed cost were those of Lot I, which got the regular alfalfa hay that had not been chopped and a full-feed of shelled corn. They were followed by the steers of Lot VI getting the sweetened protein supplement. Lot V, with corn and cob meal, ranked a close

third.

It did not prove profitable to limit the corn for the steers in this test. In other years with the price ratio different it might pay to limit the grain. Corn was charged at 84 cents a bushel and hay at \$12.00 a ton in this experiment.

Lamb Feeding Trials

GROUND alfalfa and cracked corn full-fed showed no advantage in rate of gain or in feed saved over whole hay and shelled corn in feeding trials at Iowa State College during the feeding season of 1942-1943.

These experiments also compared the feeding of lambs under shelter to feeding lambs outside with no shelter. Here again no definite advantage could be granted either method.

Small differences in daily gains and in feed consumed showed up, but they were too small to give any definite advantage to any lot. The same is true for the amount of feed necessary to get the gains. Full-feeding ground hay and corn required slightly more feed but very little more. Lambs fed shelled corn and whole hay showed a slightly more desirable finish, but not enough to penalize those self-fed ground feed.

Death losses in both trials were low. From the first double-deck of 310 lambs, only 2 were lost. One was on ground hay and corn and one on whole hay and shelled corn. Both were shelter-fed. Five lambs died out of the second bunch of 300. Three of these were fed inside; one on whole hay, the other two on ground hay. The two lambs lost from those fed outside were both on whole hay. One of all these deaths was from bloat; the rest were from injuries received in shipping or other causes.

Lambs fed outside were handled in a small lot on a sharp south slope. The soil was firm and good drainage kept the lot dry and clean. In cold, windy weather the lambs would bunch up at the lower end of the lot, where they were somewhat protected from the wind by the brow of the hill.

The fleeces of these outside lambs

Test Was for Need of Shelter and Grinding Of the Grain and Hay

consistently dried out faster after a wet day than those of the lambs given shelter, probably because of greater exposure to the wind. The sheltered lambs had a tendency to stand at the edge of their shed, where the drip from the roof fell directly on them. Roof gutters would prevent much of these wettings. The favorable season with little wet, cold weather may have had a lot to do with the good results obtained from the outside feeding.

The results of the feeding trial may be summarized as follows:

1. Results from feeding ground hay and corn grain as compared to whole hay and shelled corn show no advantage to either method in rate of gain or in total feed consumed.
2. Lambs fed shelled corn and whole hay had a slightly more desirable finish at the end of the feeding period.
3. Hay and corn must be ground if they are to be full-fed together, or the lambs will pick out the corn, and trouble from over-eating grain may come about.
4. The added expense of grinding hay and corn does not seem to be justified by the daily gains or by feed saved. The chief justification for this practice seems to be its use to hold down death losses when inexperienced help is being used for feeding.
5. Lambs full-fed ground hay and corn started out faster than those hand-

fed shelled corn and whole hay, but the latter caught up with the full-fed lambs by the end of the feeding period.

6. In a reasonably favorable year feeder lambs will do as well without shelter as if protected.

When to Plow Sweet Clover

Some farmers who sow sweet clover with their oats for green manure plow it under in the fall of the year it is sown. To try to find out whether plowing the following spring would increase the benefit from the sweet clover, the Iowa Station tried both systems on two different types of soil — one in Monroe County and the other in Story County.

On the Clarion loam in Story County, it didn't seem to make much difference in the yield of corn which followed whether the sweet clover was plowed under in the fall or plowed the following spring. In fact, a check set of plots which didn't have sweet clover sowed on them yielded almost as much as those with sweet clover.

The conclusion from these tests is that the Clarion loam probably had nearly enough nitrogen in the ground so that plowing under sweet clover had little effect on the yield of corn which followed.

But on the Putnam silt loam in Monroe County, plowing under sweet clover in the spring following the year it was sown brought almost double the yield of corn obtained where the sweet clover was plowed under in the fall, and nearly double the yield obtained by plowing under of similar plots in the spring.